ODENSE robotics

INSIGHT REPORT 2023

Transforming today's challenges into tomorrow's solutions

Growth and innovation in Denmark's robotics, automation and drone industry

About this report

As the global robotics industry responds to increasing demand for automation, this report aims to provide key insights into the development of Denmark's robotics, automation and drone industry.

The report outlines the industry's size and strengths, financial performance and contribution to green transition. It also describes Denmark's robotics ecosystem and the collaboration between companies and organisations.

Published annually by Odense Robotics, the national cluster organisation, the report builds primarily on data from the cluster's annual company member survey and national statistics.

With a vision of building a bigger, better robot nation, Odense Robotics supports companies in accelerating their growth and innovation. Together with partners from the ecosystem, the cluster strives to realise the industry's potential – so robotics, automation and drone solutions can add value to people, companies and societies worldwide.

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Contents

EXECUTIVE SUMMARY

Denmark's robotics industry grows as demand for automation continues

In recent years, Denmark's robotics, automation and drone industry has grown significantly and is now internationally recognised as a global frontrunner. But how are Danish companies faring in the light of rising inflation, changing geopolitics and lasting effects of COVID-19? The industry has maintained high growth as a result of continued strong global demand for automation.

This annual report analyses development in Denmark's robotics, automation and drone industry and is compiled by the national cluster organisation, Odense Robotics. In just a few years, the industry has gained international recognition based on its unique global stronghold within collaborative and mobile robots, as well as a long background within innovative industrial automation.

As these strongholds expand, seeing the dawn of new startups and new solutions, Denmark's robotics, automation and drone industry is relevant for a growing number of sectors worldwide. The majority of companies provide solutions for manufacturing, logistics and transport. A considerable proportion, however, serve other sectors such as agriculture, healthcare, defence and inspection.

Not only does the industry play a key role in driving productivity and green transition in Denmark and globally; it also represents one of Denmark's key growth and export industries. Today, there are more than 500 robotics, automation and drone companies in Denmark, employing a total of 17,500 people – a 14% increase on last year.

Strong growth trajectory
While the world held its breath last year to see how global change impacted markets, Denmark's robotics maintained high growth.

The industry showed strong growth last year, generating EUR 4 billion (DKK 29.6 billion) in turnover and EUR 2.1 billion (DKK 15.6 billion) in exports – a 21% increase for both on the year before. Growth was lower than expected for some companies. One in three lowered growth expectations last year in response to global uncertainty posed by inflation, geopolitics and COVID-19.

Overall, 59% of companies were satisfied with their 2022 results. What is more, companies say that issues such as supply chain that have previously been significant growth barriers, are now having less of a negative impact.

Strong outlook driven by automation benefits
As demand for automation prevails, Denmark's robotics, automation and drone industry has a strong outlook for growth, with companies foreseeing around 20% annual growth in coming years.

In 2023, turnover is expected to reach EUR 4.8 billion, with around a third of companies expecting a more than 50% increase on the year before. While there continues to be uncertainty in the market, the industry is confident it will realise high growth expectations in the short- and long-term. In 2025, the industry is expected to generate EUR 6.3 billion in turnover (DKK 46.8 billion), including EUR 3.3 billion (DKK 24.7 billion) in exports, and employ more than 30,000 people.

To conclude, the industry is continuing its strong growth trajectory driven by a continued global demand for automation. Automaton buyers are turning to Danish technologies to harvest benefits in output quality, efficiency and uptime – while enhancing employee wellbeing and green transition.

KEY FINDINGS

Denmark's robot, automation and drone industry

Companies

524 robot, automation and drone companies in Denmark

42% develop and manufacture new technology

80+% collaborate with other robotics companies

People

12,700 employees in Denmark in 2022

4,800 employees abroad in 2022

31,000 expected employees in total in 2027

Performance

EUR 4 billion turnover in 2022

EUR 6.3 billion turnover expected in 2025

EUR 990+ million invested in companies since 2015

Green transition

78% provide solutions that contribute to green transition

48% provide solutions that contribute to improved energy efficiency

84% are actively working on their company's green transition

THE INDUSTRY

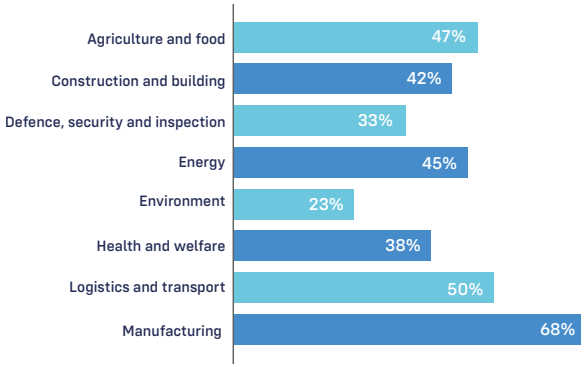
Many sectors seek automation benefits

Robotic, automation and drone solutions are by no means confined to industrial manufacturing. Today, these technologies are bringing benefits to a wide range of sectors.

Global megatrends such as growing workforce shortages and an increasing focus on green transition mean that many sectors are turning to automation in order to stay competitive and play their role in a more sustainable future.

Danish robotics, automation and drone technologies are enabling companies and organisations in a wide range of industries to increase quality and productivity, create safer work environments and operate in a more environmentally friendly way.

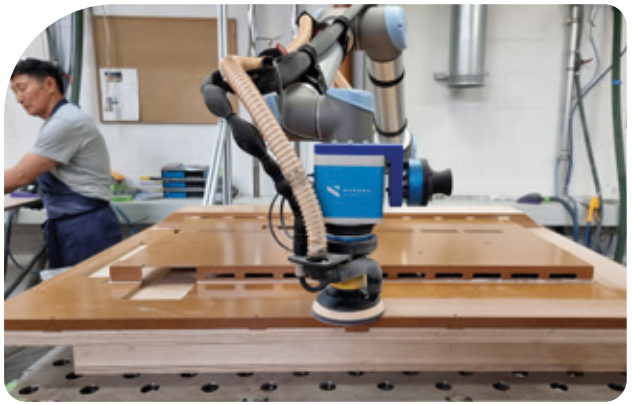
End-user sector



Source: Odense Robotics

Note: Companies can find several sectors relevant

Manufacturing continues to be the most important end-user sector for Odense Robotics' company members followed by logistics and transport. However, a wide range of other sectors are also relevant such as agriculture, energy and construction.



Manufacturing

Industrial manufacturers demand comprehensive solutions. Nordbo Robotics specialises in AI and No Code software for robotics within industrial manufacturing. Another example is Pehama Productions, which delivers customised production equipment.

Logistics and transport

Mobile robots improve logistics and reduce manual workload in many settings. Capra Robotics delivers a versatile outdoor mobile robot platform to perform a multitude of tasks in rugged terrain and urban areas.

Energy

The energy industry can apply drone tech to enhance productivity and safety. AirFlight has developed a flying crane that can transport heavy goods for the global offshore wind industry.

Defence and security

Intelligent drone solutions can perform many tasks within defence, surveillance and security. MyDefence specialises in Radio Frequency products and technology integration to create Counter Drone solutions.

Construction and building

The construction industry can gain many benefits from automation. Unicontrol has developed a user-friendly, customisable, affordable 3D machine control system for earthmoving machinery.

Environment

Reducing the use of resources is a key part of green transition. Inwatec's automated solutions enable laundries to sort clothes correctly prior to washing, thereby reducing cotton waste.

Health and welfare

Automation in hospitals can improve work environments and patient safety. Gibotech provides hospitals with comprehensive internal logistics systems and automation solutions for sterilisation departments.

Agriculture and food

By handling food intelligently, global food processors can get the most out of every piece of fish, meat or vegetable. Cabinplant's turn-key solutions precisely measure, cut, weigh and package food.

Regional strongholds and thriving ecosystem

Denmark's robotics, automation and drone industry is home to 524 companies, supported by a strong ecosystem.

524
companies

Northern Jutland

59 headquarters / 103 workplaces

Companies in Aalborg and Northern Jutland have a strong focus on automation, as well as developing hardware and software for robotic solutions, outdoor mobile robots, standard and large-sized drones and counter drone systems. Aalborg University is strongly focused on smart production, 5G and cybersecurity as well as mobile robots and drones. Odense Robotics has a regional hub in Aalborg, established in collaboration with Aalborg University.

Greater Copenhagen

112 headquarters / 171 workplaces

Zealand

30 headquarters / 60 workplaces

Companies in the Greater Copenhagen area and Zealand span a broad range of specialisms, including robotic software, drone technology and automation for manufacturing, healthcare and agriculture. Robotics research is conducted at FORCE Technology and the Technical University of Denmark, which has the Centre for Collaborative Autonomous Systems. Odense Robotics has a regional hub in Lyngby. Business Hub Zealand, together with Odense Robotics and partners, are exploring opportunities to apply automation technologies in the construction of the Fehmarn tunnel as part of Business Lighthouse Fehmarn.

Central Jutland

85 headquarters / 187 workplaces

Aarhus and Central Denmark are home to a high concentration of companies delivering robotic and drone solutions, particularly within outdoor mobile robots. Test facilities for outdoor robots are under development. Aarhus University's robotics research spans mechatronics, artificial intelligence, system dynamics, drones and more. Odense Robotics has a regional hub in Aarhus, established in collaboration with the City of Aarhus.

Southern Jutland

76 headquarters / 179 workplaces

The Sonderborg area and Southern Jutland are home to a high concentration of leading companies within industrial automation and mechatronics. Robotics research at the University of Southern Denmark in Sonderborg has a strong focus on mechatronics, smart factory and digital twin. Design School Kolding has expertise in industrial and UX design. Odense Robotics has a regional hub in Sonderborg, established in partnership with Bitten & Mads Clausen's Foundation and Danfoss.

Funen

162 headquarters / 211 workplaces

The Odense area and Funen represent a global stronghold for robotics, in particular collaborative and mobile robots, and food automation. The University of Southern Denmark's extensive robotics research includes specialisms such as collaborative robots, bioinspired robotics, applied AI, drones and Industry 4.0. The Danish Technological Institute develops advanced robot technology and houses an incubator for early-stage robotics startups in collaboration with Odense Robotics StartUp Fund. UAS Denmark International Test Center is one of northern Europe's leading unmanned systems technology test and development centres.

Odense Robotics' headquarters are in Odense, where the cluster collaborates closely with Business Hub Fyn and the nine municipalities on Funen. The region is also home to one of Denmark's eight business beacons, NextGen Robotics, which will accelerate testing, development and application of high-tech solutions within robotics, drones and autonomous coastal shipping in Denmark and globally.

THE INDUSTRY

Collaboration is in our DNA

Companies are collaborating with each other and with key players in the ecosystem. Collaboration plays a key role in the industry's ability to innovate and commercialise new technologies.

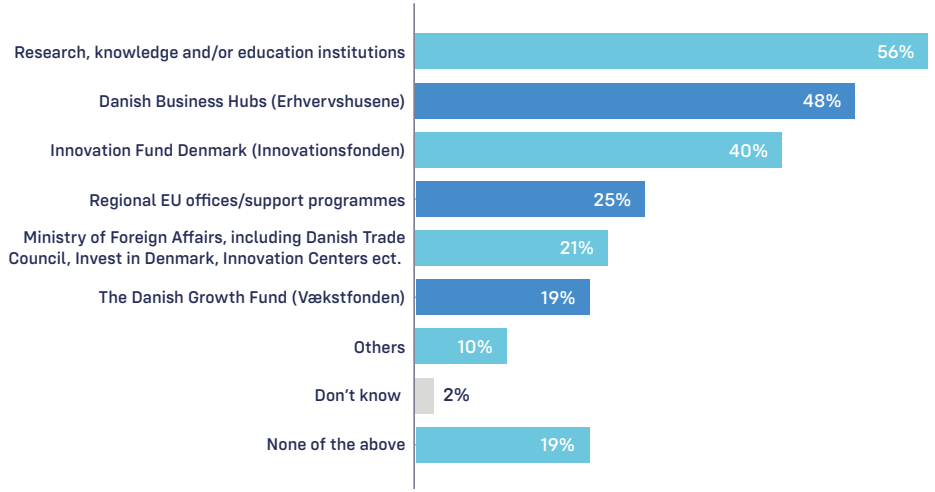
More than 80% of companies collaborate with other robotics, automation or drone companies in Denmark and/or abroad. This high level of collaboration shows companies understand its potential to create new opportunities to bring their solutions to new applications.

A strong ecosystem supports companies, consisting of knowledge and research institutions, business hubs, funding and trade bodies as well as the national cluster organisation. Almost 80% of companies collaborate with organisations in the ecosystem, mostly centred around knowledge and research institutions, the Danish Business Hubs and Innovation Fund Denmark.

ROEQ's co-founders saw a need in the market for mobile robotics equipment for Mobile Industrial Robot's autonomous mobile robots.

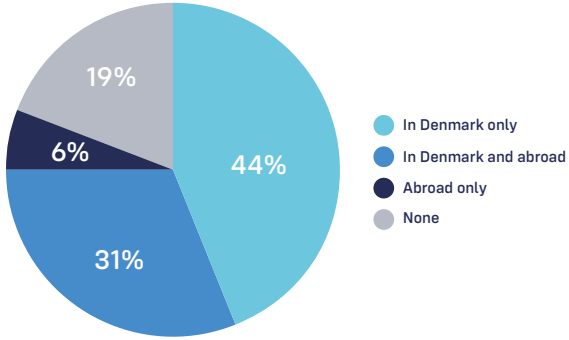
Today, the company develops and delivers plug-and-play software and a variety of useful top modules, carts, top rollers, lifters and a racks that enable MiR robots to perform multiple tasks and workflows – for example in a warehouse or production line – easily, efficiently and safely.

Other collaboration partners



Source: Odense Robotics

Collaboration with other robotics companies



Source: Odense Robotics

80+% **of companies collaborate with other robotics companies**

Pioneering automation solutions

Denmark's robotics industry spans many technologies and types of companies.

The country's robotics industry spans robotics, automation and drones. An analysis of Odense Robotics' company members shows that equal numbers of companies operate within robotics and automation, with many active in both. Almost a third are drone companies.

The industry is characterised by a high proportion of producers, which develop and manufacture solutions. The second largest category is system integrators, which assemble solutions from producers and distributors in an integrated system to be implemented at the end user. System integrators can also be responsible for installation.

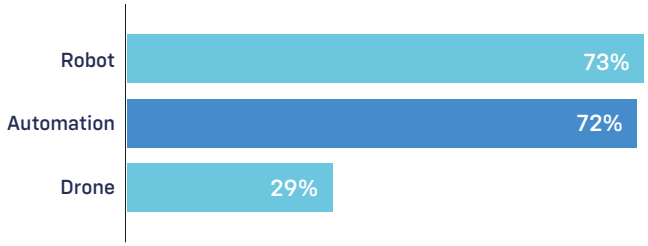
The remainder of companies are distributors, service providers, component suppliers and consultancies. Distributors sell, distribute and service robotic solutions. Service providers offer robotic services or solutions to end users.

Component suppliers develop and produce advanced value-based subsystems and components for the robotics industry, such as software components, electrical drivetrains, machine construction, sensors, vision technologies and advanced drone operators.

Consultancies advise producers, distributors, integrators and component suppliers about development and manufacturing, and/or advise end users about implementing and deploying robotic technologies.

The graphs on this page are based on data from Odense Robotics' company members.

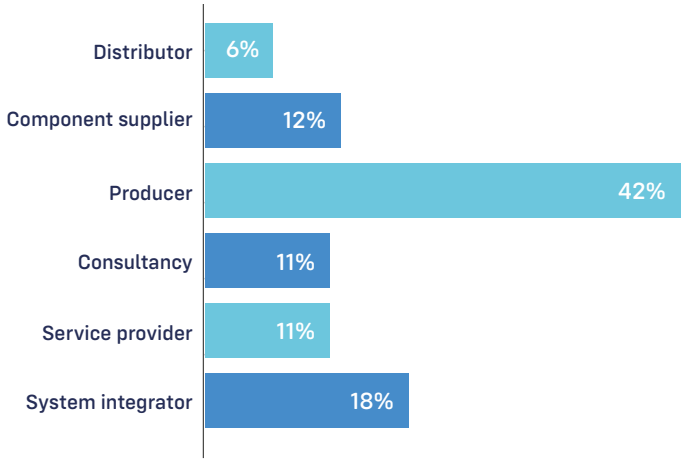
Technology areas



Source: Odense Robotics

Note: Companies can operate in more than one area.

Types of companies



Source: Odense Robotics

THE INDUSTRY

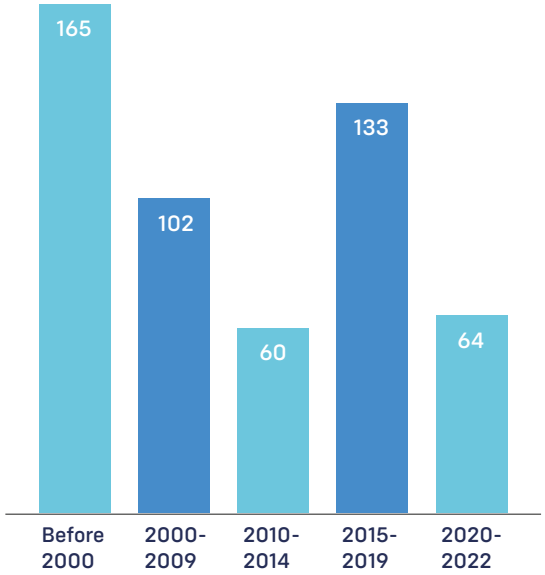
High-growth startups drive innovation

Denmark's robotics industry is characterised by a high proportion of startups and scaleups. This hotbed of innovation bodes well for the industry's future development.

Successful startups are key to maintaining Denmark's global position within robotics. New technologies and applications developed by high-growth startups play an important role in the industry's growth.

It is therefore very positive that the industry is home to a high proportion of young companies and scaleups/startups. An analysis of Odense Robotics' company members shows that as many as 17% were established between 2020 and 2022.

Number of companies founded



Source: Odense Robotics

64
startups in just the last three years

ODENSE robotics StartUp Fund & INCUBATOR

Denmark has strong ecosystem to support robotics startups in developing their solutions and business. A new addition is Odense Robotics StartUp Fund, which offers early-stage robotics and drone startups access to loan capital, mentoring and incubator facilities at the Danish Technological Institute in Odense.

Many Danish robotics startups and scaleups have emerged as a result of the country's global stronghold within collaborative robots and mobile robots. By building on these technology platforms, startups and scaleups extend functionality and creating new application areas. For example, Aim Robotics has developed end-of-arm dispensing units to be integrated with collaborative robots from Universal Robots.

"It's a massive problem that Danish nurses spend so much time on tasks unrelated to their profession," says Sara Lopez, CEO of Yuman.

Creating a better working environment

With many sectors facing widespread labour shortages, freeing up resources by automating logistics and service tasks makes great sense. Danish robotics and automation companies are making it possible.

Denmark will be short of 6,000 nurses by 2025, according to the Danish Nurses Organisation (DNO). Not only that, the organisation's analyses also show that Danish nurses spend up to two hours cleaning and tidying every day – and around an hour a day just moving from place to place, for example to collect or deliver equipment.

It's a worrying situation, particularly given the healthcare sector's workforce challenges, and unfortunately one that holds true in many countries around the world.

To solve this challenge, the startup Yuman are developing a transport robot that could become a nurse's best buddy. Developed in collaboration with nurses, the robot is designed to care of some of the purely logistical fetch-and-carry tasks, so nurses can spend the time saved on patients.

"It's a massive problem that Danish nurses spend so much time on tasks that are not related to their profession. We know that many nurses are stressed and at risk of burnout, and part of the solution is to free up time for them to spend on actual healthcare. Our solution is currently being tested at Capio Privathospital in Hellerup, and our hope is that it can be rolled out to nurses across Denmark," says Sara Lopez, CEO of Yuman.

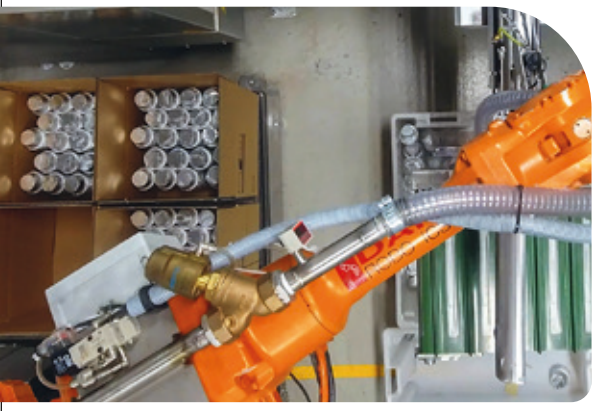
Automation spares employees from strenuous work

Danrobotics' automation solutions make it possible for companies to automate repetitive tasks and reduce strenuous physical work for employees. This is the case at Plus Pack in Odense, which produces plastic and aluminium food packaging.

At Plus Pack, the handling and packing of small aluminium boxes wasn't exactly the most popular task. The job involved several strenuous operations, such as bending over to pick up trays and various twists and turns of the hips and shoulders when operating the machines.

Instead of exposing employees to these work processes, Plus Pack now uses an automation solution from Danrobotics, where a robot handles and packs the small aluminium trays.

According to Danrobotics, this has already led to a much better working environment for employees which, among other things, has reduced sickness absence. In addition, the robot performs the tedious



tasks significantly faster than employees, which means that the investment has been quickly recouped.

Mobile robots improve wellbeing in USA

It took less than a year for six mobile robots from Danish company Mobile Industrial Robots (MiR) to pay for themselves after they were deployed to automate internal transport tasks in a 74,000 square metre manufacturing plant.

The international car parts manufacturer DENSO implemented the robots in 2020 to relieve the strain on workers at its plant in Tennessee, USA. Since then, the robots have been on more than 500,000 transport missions around the factory.

Rasmus Smet Jensen, VP of Marketing & Strategy at MiR, notes that six DENSO employees spent about 60% of their working hours pushing carts of materials from place to place, each walking up to 20 kilometres a day. This was before the MiR robots entered the factory.

"Automating repetitive and strenuous tasks with new technologies that make work less onerous can help a company retain employees," says Rasmus Smet Jensen, VP of Marketing & Strategy at MiR.

"In this particular case, it makes much more sense to pay employees to produce components rather than move them around. In addition, automating repetitive and strenuous tasks with new technologies that make work less onerous can help a company retain its employees. It makes good sense for both the company and the employees, and can be copied by others to great effect," says Rasmus Smet Jensen.

FACTS

Yuman
Developing a robot to conduct routine tasks in healthcare.

Danrobotics
Develops automation solutions, for example for packing and packaging.

Mobile Industrial Robots
Produces mobile robots, for example for moving goods around a warehouse.

PEOPLE

Workforce grows to 17,500 employees

Denmark's robotics, automation and drone industry employs 12,700 people in Denmark and 4,800 abroad. This brings the total industry workforce to 17,500 people.

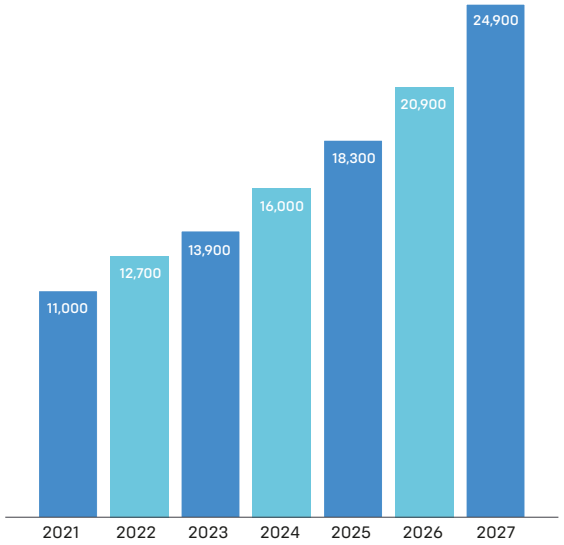
The industry expanded its workforce by 14% in 2022 compared to the previous year. Going forward, the workforce is set to grow by around 15% year on year towards 2027, with the exception of next year.

In 2023, companies expect to exercise caution in terms of recruitment and expand their total workforce by 7%. This cautionary approach can be a response to uncertainty in the market.

In 2027, Denmark's robotics, automation and drone industry is expected to employ a total of 31,000 people, with 24,900 people in Denmark and 6,100 abroad. This means 12,200 new jobs in Denmark and 1,300 new jobs abroad between now and 2027.

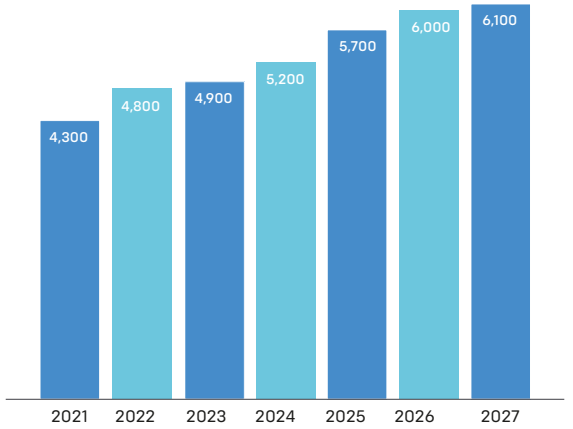
12,700 employees in Denmark | **4,800** employees abroad

Number of employees in Denmark



Source: Statistics Denmark and Odense Robotics

Number of employees abroad



Source: Statistics Denmark and Odense Robotics

PEOPLE

Recruitment challenges lead to losses

Danish robotics, automation and drone companies are actively recruiting. However, many companies struggle to find the right candidates – resulting in production or turnover losses for many.

There's a high demand for qualified employees amongst Denmark's robotics, automation and drone companies, as they seek to find the talent needed to drive the development, production and marketing of solutions.

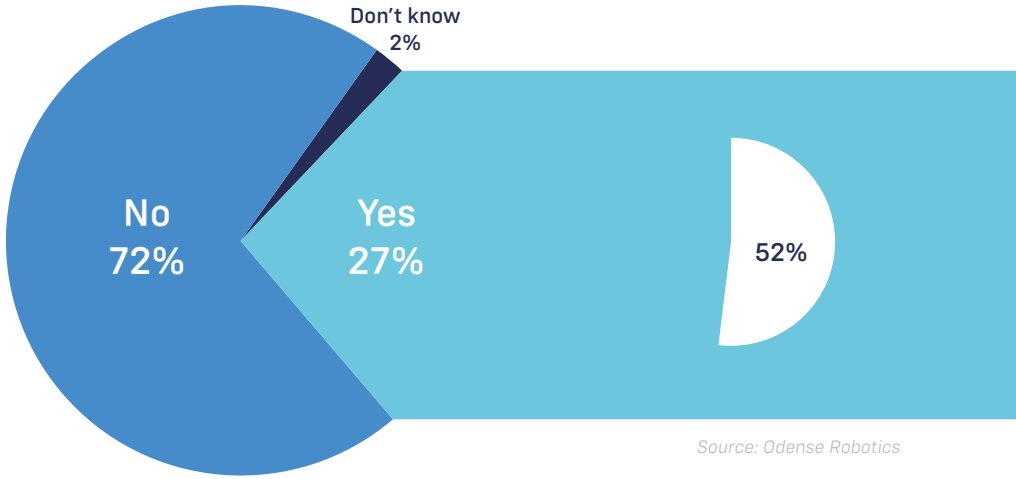
Unfortunately, many companies' recruitment efforts continue to be unsuccessful. As many as one in four companies have had to give up recruitment efforts over the past 12 months because they were unable to find qualified candidates for open positions.

Recruitment challenges are directly impacting their company performance. Of the companies that were unable to recruit candidates, 52% say that recruitment challenges are so big that they result in production or turnover losses.

Recruitment challenges

Companies that had to give up recruiting for an open position within the past 12 months due to a lack of qualified applicants.

Recruitment challenges are so big that they result in losses in production or turnover.



Source: Odense Robotics

27% unable to hire candidates

Source: Odense Robotics

PERFORMANCE

Strong growth despite uncertainty

Revenues in Denmark's robotics, automation and drone industry reached EUR 4 billion last year – a highly satisfactory result given challenges in the market.

The industry showed strong growth last year, generating EUR 4 billion (DKK 29.6 billion) in turnover and EUR 2.1 billion (DKK 15.6 billion) in exports – a 21% increase on the year before. In total, 59% of companies were satisfied with their 2022 result.

Hence, Denmark's robotics, automation and drone industry has succeeded in maintaining high growth amidst turbulent times. This performance is a result of continued strong global demand for automation, as sectors seek to harvest benefits in quality, efficiency and uptime – as well as safety, employee wellbeing and green transition.

EUR 4 billion in turnover in 2022

EUR 2.1 billion in exports in 2022

PERFORMANCE

Adapting to change

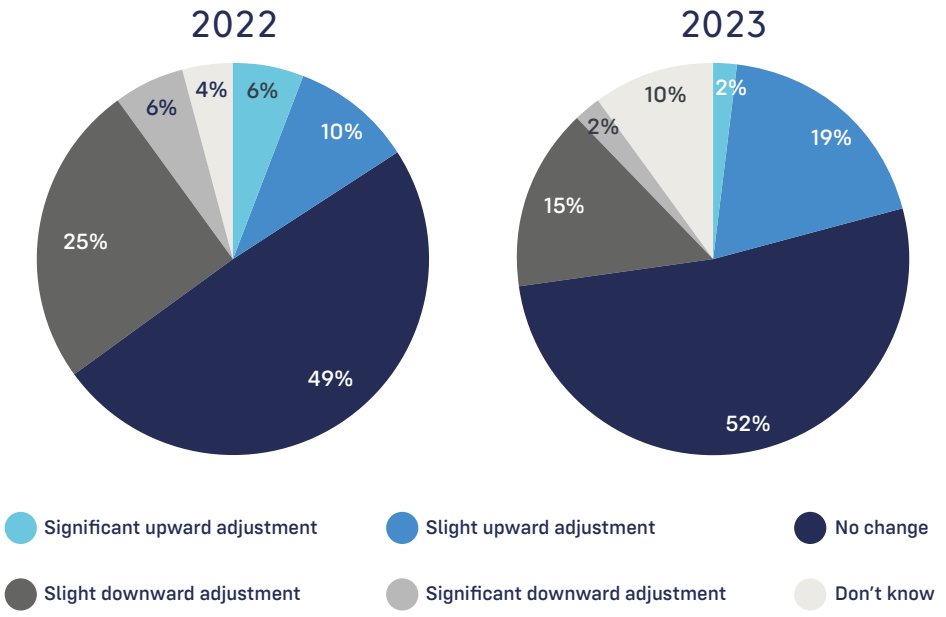
While global change caused some companies to downwardly adjust their growth plans last year, most companies expect to maintain or increase their growth trajectory this year.

Growth was lower than expected in 2022 for some companies. One in three lowered growth expectations last year in response to global uncertainty posed by inflation, geopolitics and COVID-19.

In 2023, however, this balance is expected to shift. Most companies expect to either maintain or increase their growth plans this year.

Seen in the context of the industry's high growth in 2022 and strong growth outlook, these figures show that companies are successfully adapting to challenges and opportunities in the market.

Adjustments to growth plans



Source: Odense Robotics

31% downwardly adjusted growth plans in 2022

21% expect to upwardly adjust growth plans in 2023

PERFORMANCE

Strong growth outlook

As demand for automation prevails, the robotics industry is expected to continue its strong growth trajectory, with companies forecasting around 20% annual growth in coming years.

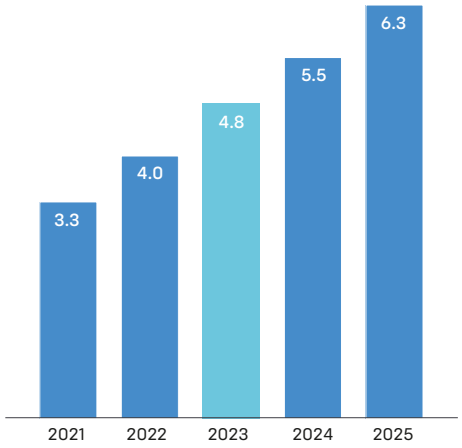
In 2023, turnover is expected to reach EUR 4.8 billion, with around a third of companies expecting a more than 50% increase on the year before.

In 2025, the industry is expected to generate EUR 6.3 billion in turnover (DKK 46.8 billion), including EUR 3.3 billion (DKK 24.7 billion) in exports. Indeed, more than half of companies expect to increase turnover by between 50-100% by 2025 compared to 2022.

A significant proportion of turnover – around half – comes from exports. As such, Denmark's robotics industry continues to have a strong global footprint.

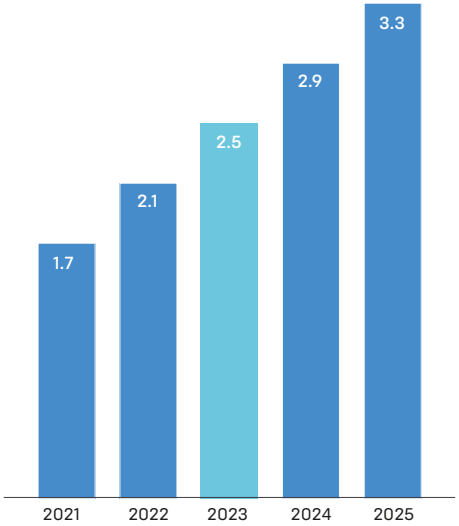
Exports are by no means limited to established companies, as is the case in many industries. Robotics startups have high export activity. Around half of all startups export and exports account for around half of their overall turnover. A similar picture can be seen amongst Danish drone companies.

Turnover, billions EUR



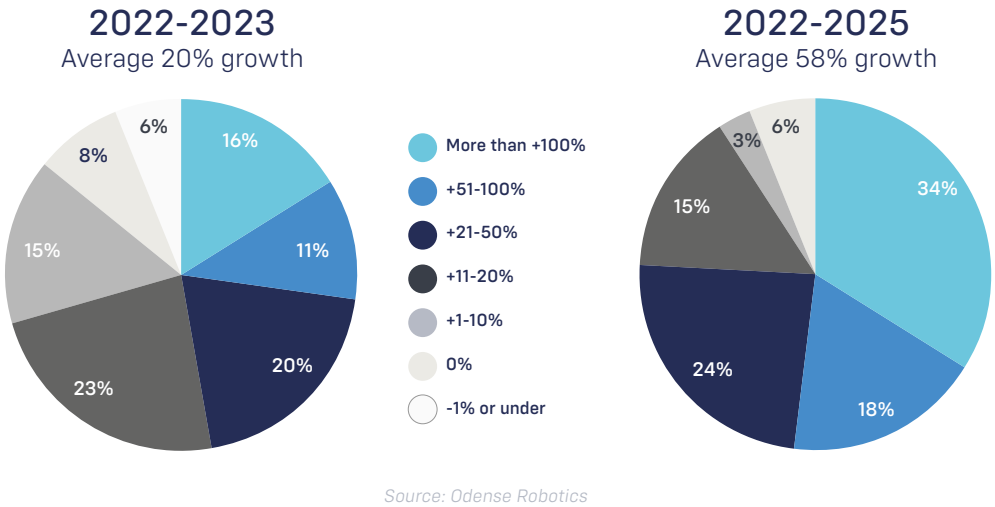
Source: Statistics Denmark and Odense Robotics

Exports, billions EUR



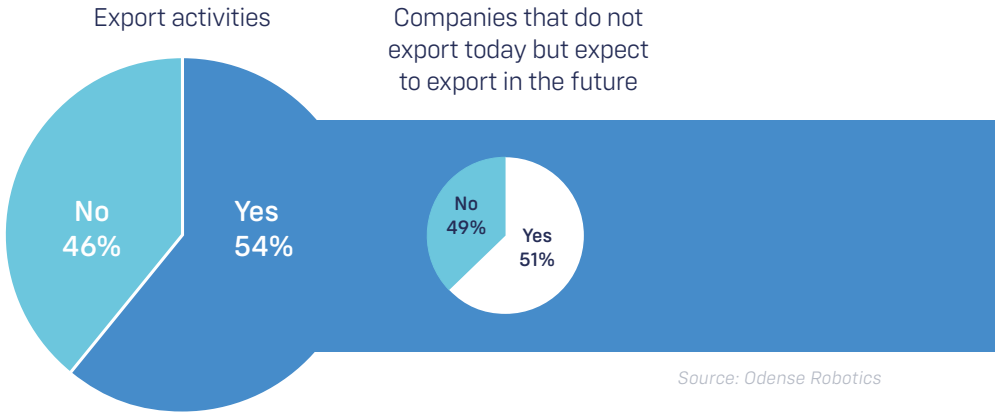
Source: Statistics Denmark and Odense Robotics

Expected increase in turnover



Source: Odense Robotics

Exports now and in the future



Source: Odense Robotics

EUR 6.3 billion turnover in 2025

3.3 billion exports in 2025

Improving company competitiveness

"When the technicians arrive, they only have to transport themselves to the nacelle and can start work immediately," says Travis James Mathers, Chief Commercial Officer, Airflight.

Automation and robots are enhancing efficiency, reducing downtime and increasing precision in many sectors globally. By using Danish robotic, drone and automation solutions, companies are able to strengthen competitiveness.

Easy Robotics specialises in developing robotic solutions for the manufacturing and logistics industries. For example, robotic cells can handle parts coming out of a CNC machine.

Customers are typically small and medium-sized companies that want to automate and obtain a standardised solution that can be replicated for multiple CNC machines.

In short, Easy Robotics' robots can help address labour shortages by improving productivity, quality and safety while reducing costs in the manufacturing and logistics industries.

"We're making factories leaner. We're also eliminating arduous and repetitive work. It's a win-win," says Anders Kjempff, CEO of Easy Robotics.

"It's also a win for the person standing there removing items from the machine, because they don't get worn out. By automating repetitive manual tasks, staff can be freed up to focus on more complex and valuable work," he says.

Easy Robotics has cemented itself as a leading supplier of machine cells for cobots.

"The expectation for 2023 is that we'll maintain and expand our position. Our goal is to be able to work with all collaborative robots on the market," says Anders Kjempff.

"We're making factories leaner. We're also eliminating arduous and repetitive work. It's a win-win," says Anders Kempff, CEO, Easy Robotics.

"We've sold more than 3,000 robot cells globally. Our ambition is for that number to be much higher. The payback time for a robotic cell is typically less than a year," explains the CEO, adding that the company's main markets are northern Europe and the U.S.

Positive impact

Robotic solutions deployed at the end-user Elektro-Isola are having a positive impact on the Danish manufacturing company's competitiveness.

Over the past few years, the company has invested in 10-15 robotic solutions. Recent additions include Universal Robots from Hobro-based Technicon and KUKA robots from QRS. During this period, the number of employees has increased.

"If we didn't have robots, we'd have a challenge with monotonous repetitive work and the strain it would impose on our employees," explains CEO Stig Krogh Pedersen.

One of the benefits of robots is that they run steadily, and the robots at Elektro-Isola are primarily designed to feed machines. A task that used to be done manually, and still is with many of the company's machines.

Alongside that, the introduction of robots has resulted in the hiring of more employees, because the robots have created greater competitiveness.

"When we're competitive, we get more orders, which actually increases employment. The more skilled people we have, the greater the chance of integrating more robots, because robots require people with certain skills. This is where the challenge arises, because it is difficult to recruit people, especially highly qualified people. We focus on keeping the machines running, and the robots are good at that. The ambition is high uptime, where people with the right skills go hand in hand with robots," says the CEO, referring to overall equipment efficiency.

Flying cranes

Airflight manufactures flying cranes, which are fully electric, heavy-lift drones that can fly with a payload of up to 200 kg. Airflight's typical customers are service providers to the wind industry that perform maintenance operations on wind turbines both onshore and offshore. Airflight is disrupting the wind energy industry with its AF200 flying cranes; it offers a faster, cheaper and greener approach to wind turbine maintenance.

"We'd have a challenge with monotonous repetitive work or the strain that would be imposed on our employees if we didn't have robots," explains CEO Stig Krogh Pedersen, Elektro-Isola.

Using flying cranes reduces the amount of downtime for wind turbines during maintenance operations, making it possible to produce and sell green energy again much faster.

"This is done by delivering the necessary tools and spare parts directly to the nacelle of wind turbines before the technicians arrive. So when the technicians arrive, they only have to transport themselves to the nacelle and can start work immediately. The process eliminates up to an hour of crane hoisting time for three technicians, which translates directly into downtime savings. Offshore, our AF200 can also optimise Service Operation Vessel logistics by reducing sailing time within the wind farms," says Travis James Mathers, Chief Commercial Officer at Airflight.

Airflight's design and customised payload delivery system, combined with the sophisticated sensor integration, contributes to the highest level of precision, Travis James Mathers emphasises.

The current AF200 prototype can fly with a payload of 200 kg, which covers 97% of wind turbine maintenance parts and tools. Each Airflight AF200 can save up to 1,800 tonnes of CO2 emissions and over €1.8 million a year in operating costs and production losses.

FACTS

Easy Robotics
Specialises in developing robotic solutions for the manufacturing and logistics industries.

Technicon
Delivers and integrates complete, flexible automation solutions across many industries.

Airflight
Manufactures flying cranes, which are fully electric, heavy-lift drones capable of flying with a payload of up to 200 kg.

PERFORMANCE

Growth barriers dropping

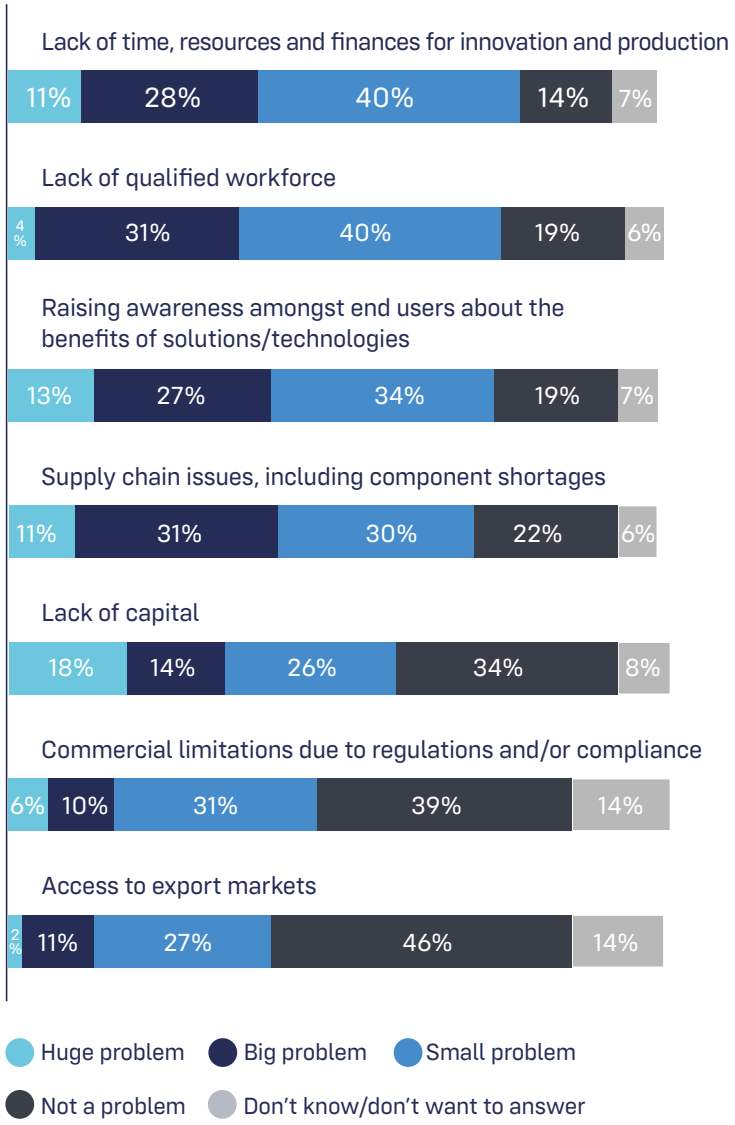
Issues that have previously been significant growth barriers for Denmark's robotics, automation and drone companies are now having less of a negative impact. While there's no denying that growth barriers still exist, it's positive to see that they are becoming less problematic.

Companies say their greatest growth barrier is a lack of time, resources and funding for innovation and product development (79%), indicating that companies' innovation potential is not fully realised.

The second greatest barrier is a lack of qualified workforce (75%) followed by a lack of awareness about the value of automated solutions (73%). On a positive note, figures indicate that awareness is improving and less of a barrier now than previously.

Supply chain issues, including component shortages, have previously been significant, however this is now ranked in fourth place, showing that it is now less of a problem than a year ago.

Growth barriers



Source: Odense Robotics

PERFORMANCE

Investment landscape

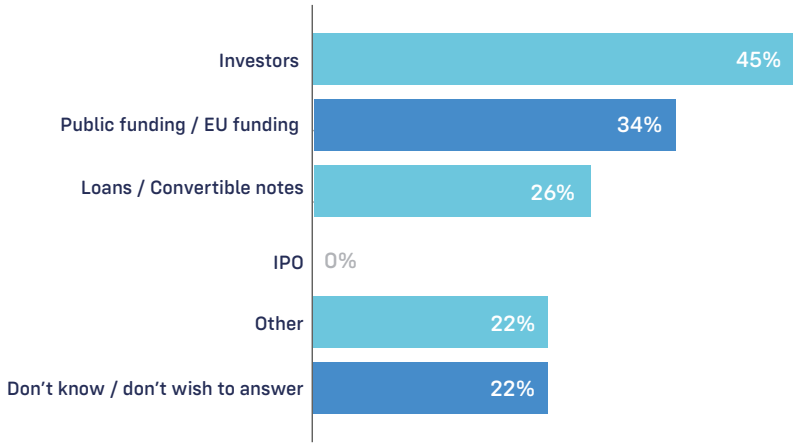
Danish companies prevail despite challenging investment market climate, with both the established veterans and newcomers raising significant funding rounds. Investments in Danish robotics, drone and automation companies amounted to over EUR 86 million this year, topping the overall investment count to EUR 990 million.

This year's result, which might be contrary to current trends, have been due to the trusted formula visible throughout the ecosystem over the last years. Mature companies such as OnRobot and Blue Ocean Robotics, which received the largest round with EUR 47 million, are being followed by multiple rounds from startups and scaleups.

In the times of uncertainty, one thing that can be counted on is the reinvestment phenomenon driven by several domestic investors. Last year, the most active investors were Thomas Visti (SubBlue Robotics), and Richa Hallundbæk Misri and Esben Østergaard (ReInvest Robotics) adding two new companies to their portfolio – Spin Robotics and Blue Atlas Robotics.

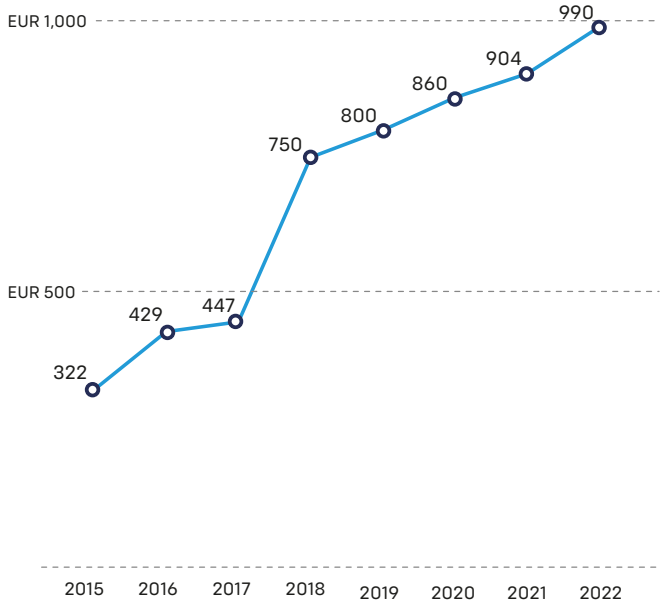
Direct investments continue to be the primary source of capital for companies followed by public or EU support programmes.

Sources of capital



Source: Odense Robotics

Total investments in companies, EUR million



Source: Odense SEED & VENTURE, Dealroom.co.
Note: Investments in Danish companies outside of Funen only included from 2020

GREEN TRANSITION

Key driver for green transition

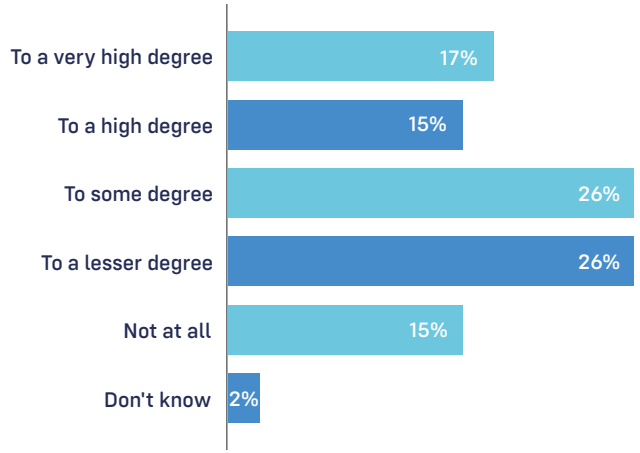
Denmark's robotics industry is a key driving force in green transition and circular economy, and an important part of the green value chain.

84% of companies actively work with their own green transition and circular economy. This is primarily driven by social responsibility (71%), followed by strengthening company reputation (47%), and thirdly strengthening competitiveness and reducing cost and resources of operations (joint 42%).

Solutions drive green transition
The majority of companies – 78% – provide solutions or products that contribute to their customers' green transition / circular economy. Robotics companies provide solutions that enable their customers to be more energy efficient (48%), reduce the use of resources and materials (45%), and reduce C02 (36%).

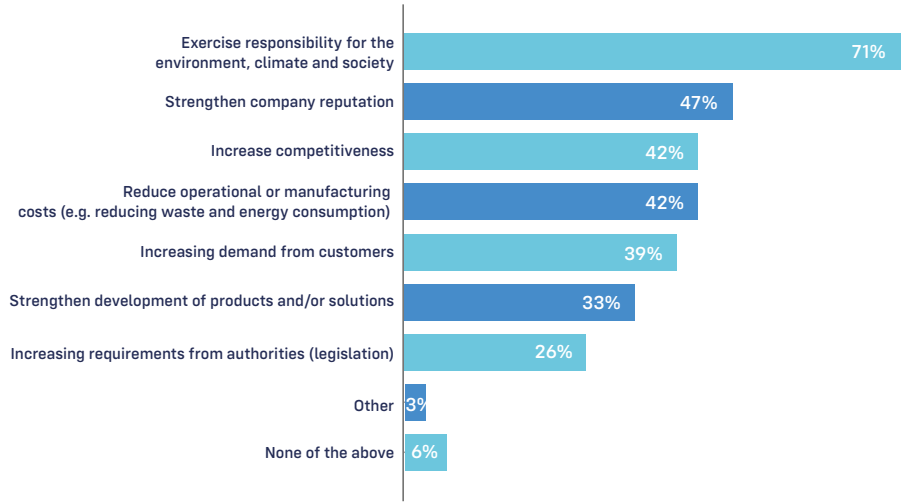
Important supplier to green industry
Denmark's robotics, automation and drone companies are important suppliers of technologies to companies in the green industry. More than 60% of companies have customers that produce green solutions. This 'green' customer base primarily operates within the energy efficiency sector and the wind industry, but also includes sectors such as agriculture and food production.

Companies working with their own green transition and/or circular economy



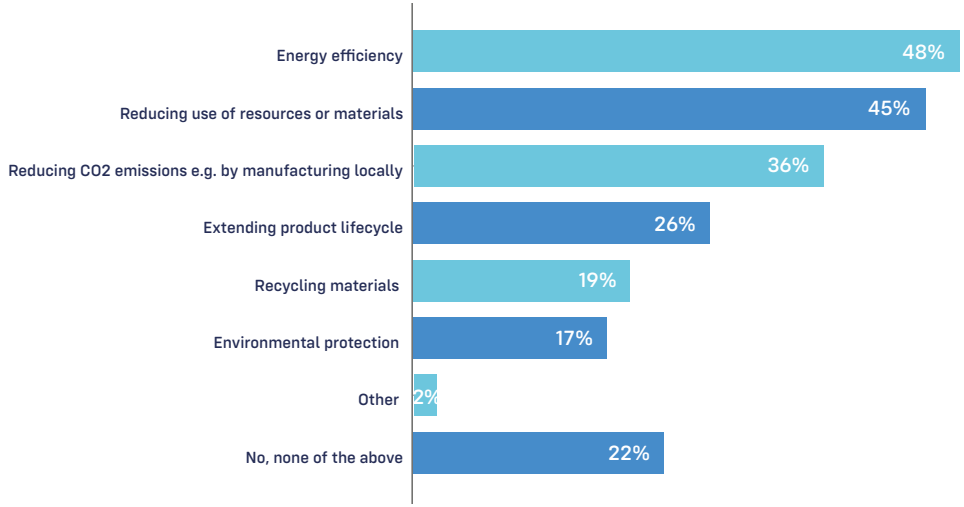
Source: Source: Odense Robotics

Reasons why companies work with green transition and/or circular economy



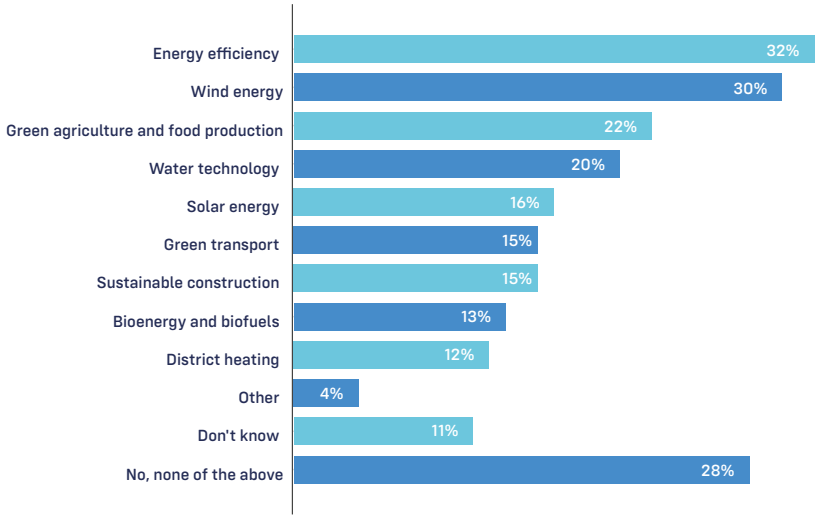
Source: Odense Robotics

Companies providing products/solutions that contribute to customers' green transition and circular economy by...



Source: Odense Robotics

Companies with customers delivering green solutions within...



Source: Source: Odense Robotics

84% of companies actively work with their own green transition and circular economy

78% provide solutions that contribute to their customers' green transition/ circular economy

Making our world greener

There is a huge need in the market for new technology if we are to succeed with green transition. A number of Danish robotics companies are ready to deliver innovative and high-tech solutions.

FACTS

ARIS Robotics
Develops software that uses artificial intelligence to sort waste.

Rope Robotics
Produces robots that can repair wind turbine blades

COBOD International
Manufactures fully automated construction robots based on 3D printing.

Ann-Mia Ambjerg wants to make the world a greener place.

The ultimate goal is to create a world without waste, which is why the CBS graduate joined forces with Sina Pour Soltani and Christian Eberhardt two years ago to found ARIS Robotics.

They received DKK 1 million from a number of funds for their innovation work, and are now ready to go to market with software that can sort waste based on artificial intelligence.

"The technology is based on image recognition, and the product is faster and better at recognition than what is on the market today. With easy customisation, we can configure the product to fit many different contexts," says Ann-Mia Ambjerg.

"We're developing the software, and we want to partner with companies that can handle the physical waste sorting.

ARIS Robotics has a goal of implementation in at least five industries to optimise and manage waste.

Examples could be the construction and textile industries, but also restaurants and hotels, which have a need to sort waste.

"Our ultimate goal is to create a world without waste. We want to stop the flow of waste going to landfill or incineration. If the waste is sorted well enough, it could be reused for other products. A world without waste is certainly not unrealistic, but as things stand, there are many problems with waste.

When we throw something out, we're completely blind to where it ends up, and it's therefore difficult to invest in solutions because we lack data," says Ann-Mia Ambjerg. "That's why we're initially focusing on creating solutions that can deliver data on waste streams."

ARIS Robotics is aiming for its technology to enter the market this year, with the slightly longer-term goal of the technology being part of an overall package of waste-handling technology that can solve the world's huge waste sorting needs.

Robot repairs wind turbines

While sorting waste is a huge challenge, repairing wind turbines is also a major undertaking. At a small factory in the Aarhus suburb of Åbyhøj, the people behind Rope Robotics are well on their way to global success, benefitting the cause of a greener world. They have developed the wind industry's answer to a Swiss Army knife: a robot that is modular and can perform many different tasks.

When a turbine blade turns, the tip can travel up to 400 km per hour. When wind and raindrops hit it, the surface peels off, reducing the wind turbine's production of green energy.

There are an estimated 400,000 wind turbines worldwide, and they all face the same problem at some point. The blades need to be repaired. This is expensive and entails risk. The robot from Rope Robotics is about four times more efficient than conventional, manual solutions. It can save time - thus enabling the wind turbine to deliver more green power - it reduces the risk of work accidents, and the robot can repair and maintain a wind turbine blade at a much higher level of quality than humans are capable of.

So far, Rope Robotics has produced 10 robots, each of which can maintain 60 wind turbines per year.

"We're happy and proud of what we've achieved so far," says Rope Robotics' CEO Martin Huus Bjerge.

He shares managerial responsibility with Kristina Nørgaard Madsen, and they aim to make Rope Robotics Denmark's next big robotics story.

"We dream of becoming the biggest player in automatic servicing of wind turbines for the benefit of the green transition," says Kristina Nørgaard Madsen.

Robotics revolutionises construction

At COBOD International, CEO Henrik Lund-Nielsen has no doubt that robots will be a gamechanger in the construction industry.

"We're going to revolutionise the construction industry, and in terms of the green transition we're going to make some very smart solutions that benefit the environment. Robots are a big part of the green solution in construction, partly because printers generate virtually no waste," explains Henrik Lund-Nielsen.

COBOD International manufactures fully automated construction robots based on 3D printing. Instead of casting concrete with formwork, consisting of a mould with plates held together with a series of tools, and a curing time of three or four days, a robotic printer can produce a concrete element directly, making the manufacturing process much more efficient.

Since the company was founded in 2017, it has sold 65 printers, including to GE Renewable Energy. In 2022, it had a turnover of approximately DKK 115 million and today the company employs over 100 people.

It manufactures wind turbine towers in a trumpet design, which means that the geometry provides even better support, reducing concrete thickness and the amount of material needed for reinforcement, while also eliminating the need for a solid foundation. The foundation can be made as a perimeter footing, saving approx. 40% of materials and a lot of CO2.

The director predicts that 50% of future tasks on a construction project can be handled using the company's robotic printers.

"We dream of becoming the biggest player in automatic servicing of wind turbines for the benefit of the green transition," says Kristina Nørgaard Madsen, COO, ROPE Robotics.

Wind turbine tower, printed by COBOD International in collaboration with GE Renewable Energy.

ODENSE ROBOTICS

Denmark's cluster for robotics, automation and drone technology

We help companies grow and innovate – so robotics, automation and drone solutions can bring benefits to companies, people and our planet.

340+ members

5 regional hubs

Connecting the ecosystem

We connect the robotics, automation and drone ecosystem by collaborating with partners throughout the value chain.

JOIN THE CLUSTER

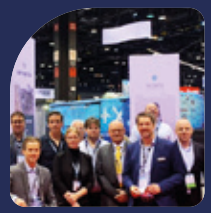
How you can benefit

Become a part of Odense Robotics

More than **300** robotics, automation and drone companies and organisations have already joined the cluster.

Participate in events

Gain **insights** and network with peers at our many events. Year round you can choose from conferences, workshops, webinars and more.



Explore new technologies and products

Take part in our **tech development** projects. Accelerate your innovation by tapping into research know-how, accessing funding and getting the right partners on board.

Get ready for global growth and scale up your business

Strengthen your company's competitive edge and **scale up successfully** through our business development programmes.

Accelerate your startup

Get help to develop your solution and build your business, so you can go to market faster and more successfully. Take part in our acceleration programmes and apply to Odense Robotics StartUp Fund for **mentoring, funding** and **incubation**.

Increase your visibility

Be seen. **Get noticed**. Showcase your company at our events. Meanwhile, we showcase success stories through our channels.

Network

Build relations that strengthen your business. Meet peers and share insights in our many networking groups, so you are better equipped to grasp new opportunities.

Find your next employee

Post your jobs and search CVs on **www.robotic-careers.com**, the leading career portal for talent looking for job opportunities in Denmark's robotics, automation and drone sector.

Get started

Request a meeting and find out how you can benefit from the cluster's activities. Or simply request membership at **www.odenserobotics.dk/join**

ODENSE ROBOTICS

Member directory

For the latest updates, see
www.odenserobotics.dk/member-directory

AALBORG HUB

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www.addingengineering.dk

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Conformitech
www.conformitech.dk

Erhverv Norddanmark
www.erhvervnorddanmark.dk

FLAIRMO
www.flairmo.dk

idoc A/S
www.idoc.as

INROPA
www.inropa.com

INTELLIGENT SYSTEMS
www.intelligentsystems.dk

Kvejborg
www.kvejborg.dk

Körber Supply Chain DK
www.koerber-supplychain.com

Life Science Robotics
www.lifescience-robotics.com

LT AUTOMATION
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Move2x
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Peak Wearhousing
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Yodaway
www.yodaway.com

AAU
www.aau.dk

AARHUS HUB

3DVerkstan Danmark ApS
www.3dverkstan.dk

4TECH Robotics
www.toolchanger.eu

Akson Robotics
www.akson-robotics.dk

AU
www.au.dk

AUH Skejby
www.en.auh.dk

AVNET NORTEC
www.avnet-abacus.eu

Business Region MidtVest
www.brmidtvest.dk

Capra Robotics ApS
www.capra.ooo

CIT Robotics

CONPLEKS INNOVATION ApS
www.conpleks.com

Dansk IngeniørService
www.d-i-s.dk

Drone Systems ApS
www.dronesystems.dk

Elontech ApS
www.elontech.dk

ETK EMS SKANDERBORG A/S
www.etk.dk

GotPosition og GamesOnTrack
www.gotposition.com

GROULEFF KOMMUNIKATION ApS
www.grouleff.it

Hecto Drone ApS
www.hectodrone.com

KUKA Denmark
www.kuka.dk

Mercantec
www.videnscenterportalen.dk/arn

mpeople
www.mpeople.dk

Nordic Radar Solutions ApS
www.nordicradarsolutions.com

O-Robotics
www.O-Robotics.com

PREVAS A/S
www.prevas.dk

ROBOTWORKSHOP
www.robotworkshop.dk

Rope Robotics ApS
www.roperobotics.com

Scandimatic
www.scandimatic.dk

Schmidt Innovation
www.sinno.dk

Scout Robotics ApS
www.scoutrobotics.dk

Seginova
www.seginova.com

SKYTEM SURVEYS
www.skytem.com

Starco
www.starco.com

SYSTEMATIC A/S
www.systematic.com

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TinyMobileRobots ApS
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Traqnology
www.traqnology.com

Uniwelco
www.uniwelco.com/da

Upteko ApS
www.upteko.com

Ventus Wind Services A/S
www.ventus.group

XploR XR
www.xplorxr.dk

Yaskawa Danmark
www.yaskawa.dk

Østjyllands Politi, Hovedstation, og Rigspolitiet
www.politi.dk

COPENHAGEN HUB

Aerial Tools
www..aerial-tools.com

AgriRobot
www.agrirobot.ai

Aim Robotics ApS
www.aim-robotics.com

ANALOG DEVICES A/S
www.analog.com

AVS DANMARK ApS
www.avsdanmark.dk

BAGGER-NIELSEN ApS
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BO KROGH. ApS
www.bok.dk

Bosch Rexroth
www.boschrexroth.com/da/dk

CESTEK A/S
www.cestek.dk

CHAMAJ CONSULT ApS
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COBOD International A/S
www.cobod.com

Cobot Lift ApS
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Covi
www.covi.dk

CUC ENGINEERING A/S
www.cuc.dk

Damvig A/S
www.damvig.dk

Danske Bioanalytikere
www.dbio.dk

Drone Volt Scandinavia ApS
www.dronevolt.com

Droneberedskabet KBHV/Rigspolitiet
www.politi.dk/koebenhavns-vestegns-politi

DSV AIR & SEA A/S
www.dsv.dk

DTU Lyngby Innovation og Entrepreneurskab
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Dynatest
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EasyPartz ApS
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EmbodySelf
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FESTO
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FORCE Technology
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Graspian
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IFM ELECTRONIC A/S
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IHFOOD
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IPU
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JOKAB SAFETY DK A/S
www.jokabsafety.dk

Kassow Robots
www.kassowrobots.com

Khora Virtual Reality
www.khora.com

Københavns Professionshøjskole
www.futureclassroomlab.dk

L&T Technology Services Limited
www.ltts.com

LANGEBÆK A/S
www.langebaek.com

LOLLE & NIELSEN
www.lolle-nielsen.com

Meili Robots
www.meilirobots.com

Monopulse
www.monopulse.eu

MOVE INNOVATION
www.moveinnovation.dk

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NCAB GROUP DENMARK
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www.nordic-wing.com

Northcom
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ODU
www.odu.dk

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www.oemklitso.dk

OMRON ELECTRONICS A/S
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PEPPERL + FUCHS A/S
www.pepperl-fuchs.com

PHOENIX CONTACT A/S
www.phoenixcontact.com/da

PKJ Robotic
www.pkj-robotics.dk

REGAL A/S
www.regal.dk

RiACT
www.riact.eu

Rigspolitiet, afd. Klausdalsbrovej 1
www.politi.dk

Rittal
www.rittal.com/dk-da

Robotize ApS
www.robotize.com

Rohde & Schwarz Danmark A/S
www.rohde-schwarz.com

RotoWorks
www.rotoworks.dk

RubiNord
www.rubinord.dk

Scaletronic
www.scaletronicglobal.com

SCANCON ENCODERS A/S
www.scancon.dk

Scandinavian Drone Solutions A
www.scandidrones.com

Schneider Electric Danmark A/S
www.se.com

Seasony
www.seasony.io

Shape Robotics
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SICK A/S
www.sick.com/dk/da

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SoftBank Robotics
www.meetwhiz.com

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Tekniq Arbejdsgiverne
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Teknologirådet
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TÜV SÜD DANMARK ApS
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Udenrigsministeriet, Invest in Denmark
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Vejdirektoratet
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WeFly ApS
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WEIBEL SCIENTIFIC
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Yuman
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Zolvo
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4X-Robots
www.4x-robots.com

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Adwizors.com IVS
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AirPlate
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Aris Robotics
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Automation Lab
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Autonomous Units
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www.bionicsystemsolutions.com

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Blue Atlas Robotics
www.blueatlasrobotics.com

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Buildcode
www.buildcode.dk

CABINPLANT A/S
www.cabinplant.com

CBRE Teknisk Servicepartner
cbre-tekniskservicepartner.dk

Coalescent Mobile Robotics
www.cm-robotics.com

DanaDynamics ApS
www.danadynamics.com

DanRobotics A/S
www.danrobotics.dk

DroneFyn
www.dronefyn.dk

EffiMat Storage Technology A/S
www.effimat.com

EGATEC A/S
www.egatec.dk

ELEMENT LOGIC DENMARK A/S
www.elementlogic.dk

ELMATICA ApS
www.ncabgroup.com

Enabled Robotics ApS
www.enabled-robotics.com

Essential Consulting
www.essential-consulting.com

Flip Robotics
www.fliprobotics.dk

Fundingbox Research ApS
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Fynbo Technology
www.fynbo-tech.com

GAIN & CO aps
www.gainco.dk

GIBOTECH A/S
www.gibotech.dk

GoBe Robots ApS
www.gobe-robots.com

Graphic Robotics ApS
www.graphicrobotics.org

Hydrovertic
www.hydrovertic.com

ICS A/S
www.ics.as

InCite Robotics ApS
www.inciterobotics.com

INROTECH A/S
www.inrotech.com

INWATEC ApS
www.inwatec.dk

JORGENSEN ENGINEERING A/S
www.jorgensen.dk

KEN HYGIENE SYSTEMS A/S
www.ken.dk

Kitopi Denmark
www.kitopi.com

KOBOTS company
www.kobots.dk

KUBO Robotics ApS
www.kubo.education

LapTics
www.sdu.dk/en/forskning/sdurobotics/researchprojects/laptics

Larsen Robotics

LEICA GEOSYSTEMS TECHNOLOGY A/S
www.leica-geosystems.com

Lifeline Robotics A/S
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Lorenz Technology ApS
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Makin
www.makin3d.com

Maskinfabrikken HMA
www.hma.dk

Maskinfabrikken SKN A/S
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MIR
www.mobile-industrial-robots.com/da

Mollerup Automation ApS
www.mollerup.info

MRR PRODUKTION A/S
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Naust Robotics ApS
www.naustrobotics.com

NewIcon ApS
www.newicon.fi/da

Nidec Industrial Automation Denmark A/S
www.nidec.com/en/corporate/network/sales/ls_denmark_sa

Nord Modules A/S
www.nord-modules.com

Nordbo Robotics
www.nordbo-robotics.com

North European Modularization Network
www.modularization.net

Odense Havn A/S
www.lpo.dk

Odense Rådhus
www.odense.dk

Odense Universitetshospital Geriatrisk Afdeling G
www.ouh.dk/wm477703

ODICO A/S
www.odico.dk

OnRobot A/S
www.onrobot.com

Plan2Fly
www.plan2fly.com

Teknologisk Institut – Produktion og Innovation
www.teknologisk.dk

PRODUKTIONSTEKNIK ApS
www.produktionsteknik.dk

QuadSAT ApS
www.quadsat.com

Rapidshape
www.rapidshape.dk

REInvest Robotics ApS
www.reinvestrobotics.com

Reynolds & Moore
www.reynolds-moore.com

RoboBend
www.robobend.dk

Robot at Work
www.robotatwork.com

Robot Logistics ApS

Robot Nordic ApS
www.robotnordic.com

RobStruct
www.robstruct.com

Robtelli
www.robtelli.com

ROEQ ApS
www.roeq.dk

ROICO
www.roicosolutions.com

ROLL-O-MATIC A/S
wwwwww.roll-o-matic.com

Ropca
www.ropca.com

SANOVO TECHNOLOGY A/S
www.sanovogroup.com

SCAPE TECHNOLOGIES A/S
www.scapetechnologies.com

SCHUNK INTEC A/S
www.schunk.com

SCIENCE VENTURES DENMARK A/S
www.scienceventures.dk/da/forside

SENMATIC A/S
www.senmatic.com

SENSOHIVE TECHNOLOGIES ApS
www.sensohive.com

SKY LEVEL IVS
www.skylevel.dk

Smooth Robotics ApS
www.smooth-robotics.com

Spin Robotics
www.spin-robotics.com

SubBlue Robotics ApS
www.subbluerobotics.com

SVEND FREDERIKSEN MASKINFABRIK
www.sfm.dk

SYD Dynamics ApS
www.syd-dynamics.com

Syddansk Erhvervsskole Odense-Vejle
www.sde.dk/til-virksomheder/videnscenter

Syddansk Universitet SDU hovedsæde
www.sdu.dk

TEKprojekt ApS
www.tekprojekt.dk

Tietgenskolen
www.tietgen.dk

TOMMERUP ELEKTRONIK A/S
www.teas.dk

Tonus Tech
www.tonus.tech

TOP CNC ApS
www.top-cnc.dk

trendlog.io ApS
www.trendlog.io

TripleA Robotics ApS
www.triplea-robotics.com

TriVision A/S
www.trivision.dk

UCL
www.ucl.dk

Unicontrol
www.Unicontrol.io

UNIVERSAL ROBOTS
www.universal-robots.com

UVD Robots ApS
www.uvd-robots.com

VAC Consulting
www.vac-consulting.dk

VALK WELDING DK A/S
www.valkwelding.com/dk

VesCo Systems ApS

Viking Software A/S
www.vikingsoftware.com

Visti Unlimited ApS
www.vistiunlimited.com

WENZEL NIELSEN ApS
www.wenzelnielsen.dk

Zensi Robotics ApS
www.zensirobotics.com

SONDERBORG HUB

3TECH AUTOMATION A/S
www.3tech.dk

AGRAMKOW FLUID SYSTEMS A/S
www.agramkow.com

Alsmatik A/S
www.alsmatik.dk

BAYTECH A/S
www.baytech.dk

BECKHOFF AUTOMATION ApS
www.beckhoff.com/da-dk

Belden
www.belden.com

Billund Erhvervsfremme
www.billunderhverv.dk

Business Esbjerg
www.businessesbjerg.com

Business Aabenraa
www.businessaabenraa.com

CCM ELECTRONIC ENGINEERING ApS
www.ccm-ee.dk/da

CS ELECTRIC A/S
www.cselectric.dk

DANAUTOMATION ApS
www.danautomation.dk

Danfoss Drives
www.danfoss.com

DANIIT A/S
www.daniit.dk

DESIGNSKOLEN KOLDING
www.designskolenkolding.dk

Dronevic ApS
www.dronevic.dk

EasyRobotics ApS
www.Easyrobotics.biz

ElastiSense ApS
www.elastisense.com

Erhvervsakademi SydVest
www.easv.dk

EUC Syd
www.eucsyd.dk

FarmDroid ApS
www.farmdroid.dk

FUJI PACKAGING A/S
www.fuji-packaging.dk

GCM
www.gearcentralen.dk

GRÅSTEN MASKINSERVICE
www.gms.as

Haderslev Erhvervsråd
www.her.dk

Halo Drone
www.halodrone.dk

HANNEMANN ENGINEERING ApS
www.hannemann-eng.dk

HARTING ApS
www.harting.dk

Holtec A/S
www.holtec.dk

Industri-Automatik A/S
www.industri-automatik.dk

KIRKHOLM MASKININGENIØRER A/S
www.kirkholm.dk

LINAK A/S
www.linak.dk

LOGITRANS
www.logitrans.dk

Nomotec ApS
www.nomotec.dk

Padborg Transportcenter
www.padborgtransportcenter.dk

PEHAMA PRODUCTIONS A/S
www.pehama.dk

Pilz Skandinavien K/S
www.Pilz.dk

QUBIQA A/S
www.qubiqa.com

Region Syddanmark
www.regionsyddanmark.dk

rotorcam v/Søren Jørgensen
www.rotorcam.dk

SCANDINAVIAN AVIONICS A/S
www.scanav.com

Signode Denmark ApS
www.signode.com

South Denmark European Office
www.southdenmark.be

Still
www.still.dk

Strecon
www.strecon.com

SWIENTY
www.swienty.com

Sygehus Sønderjylland - Aabenraa
www.sygehussonderjylland.dk

Sønderborg Vækstråd
www.svr.sonderborg.dk

SAAB DANMARK
www.saab.com

TECH assist
www.tech-assist.dk

Tentoma
www.tentoma.com

Toyota Material handling Danmark A/S
www.toyota-forklifts.eu

Trekantområdet Danmark
www.trekantomraadet.dk

Trimatic Automation
www.trimatic.dk

Tønder Erhvervsråd
www.toendererhvervsraad.dk

Udviklingsråd Sønderjylland
www.soenderjylland.dk

Viden om Data
www.videnscenterportalen.dk/dsf

Weldingdroid
www.weldingdroid.dk

ABROAD

Lattice Semiconductor
www.latticesemi.com

Liewenthal Electronics Ltd
www.liewenthal.ee

Nordic Unmanned
www.nordicunmanned.com

ProCobot
www.procobot.com

VERTLINER
www.vertliner.com

Würth Elektronik Sweden AB
www.we-online.com

Methods

Scope
This report examines all companies in Denmark with a Danish CVR number that are identified by Odense Robotics as having a relevant focus in the industry within robotics, automation and/or drone technologies. This individual mapping is necessary because no industry code exists.

Companies can either be a member of Odense Robotics or identified as relevant through desk research by examining each individual company's share of turnover in the industry as well as the extent to which the company has a strategic focus, dedicated technologies and high-tech service with various application areas.

Odense Robotics' definition of the industry covers the following six types of companies:

- Producer: Companies that develop and manufacture solutions based on robotic, automation and drone technologies.
- System integrator: Companies that bring together various robotic, automation and drone solutions from producers and distributors in one integrated system that can be implemented at the end user. System integrators can also be responsible for installation.
- Service provider: Companies that provide robotic services or solutions to end users.
- Component supplier: Companies developing and producing advanced value-based subsystems and components for the robot-, automation and drone industry, such as software components, electrical drivetrains, machine construction, sensors as well as vision technologies and advanced drone operators.
- Consultancy: Companies that advise producers, distributors, system integrators and component suppliers about their development and manufacturing, and/or advise advanced end users about implementing and deploying robotics technologies.
- Distributor: Companies that distribute, sell and service robotic solutions typically via an affiliate.

Data sources
The report's data is based on quantitative analysis from the following sources:

- Odense Robotics' master data on members.
- Odense Robotics' master data on other companies in the industry.
- Odense Robotics' annual survey of its member companies. The survey data is gathered and examined by the market research agency Wilke A/S. The latest survey was conducted in the period 6-30 January 2023 and had 124 respondents. The result is considered to be representative of the cluster as a whole because responses are evenly spread in terms of e.g. company size and type.
- Statistics Denmark. This data dates back one year and relates to companies that are active in the CVR register and established on 31.12.2021 or before. All data from Statistics Denmark is from end 2021 except from the number of employees abroad, which dates from end 2020.
- Odense SEED & VENTURE's master data and data from Dealroom.co.

Calculation methods
Some companies are fully dedicated to robotics, automation and/or drone technologies, while others are only partially dedicated to the field. In order to provide the most accurate picture possible of the industry, Odense Robotics has weighted all identified companies according to an estimation of how big a share of the company's turnover is derived from the industry.

This weighting is applied to data from Statistics Denmark and from Odense Robotics' company member survey. This ensures that only the part of the activity concerning robotics, automation and drones is included. Some very big companies are analysed individually based on publicly available figures rather than data from Statistics Denmark.

The number of headquarters, workplaces, geographical location and year established are provided by Statistics Denmark. Development in employees in Denmark and abroad, turnover and exports are based on data from Odense Robotics' company member survey and data from Statistics Denmark.

Company types, technology areas and end-user sectors are based solely on Odense Robotics' master data on member companies.

The following is based solely on data from Odense Robotics' company member survey:

- Companies' recruitment issues
- Collaboration with other companies and partners
- Adjustments to growth plans
- Exports now and in the future
- Growth barriers
- Sources of capital
- Green transition and circular economy.

Investment in Danish robotic, automation and drone companies is calculated by Odense SEED & VENTURE and includes figures from Dealroom.co. The figure for investments in companies since 2015 is an accumulated figure based on investments made in Funen-based companies until 2019 and national figures from 2020. Additional investments can have taken place without the knowledge of Odense SEED & VENTURE.

Use of material
Odense Robotics would like to thank all companies that participated in this survey for their valuable contribution to this report. Please state the source when using or referring to the material in this report. This report is available on Odense Robotics' website.

About Odense Robotics

Odense Robotics is Denmark's national cluster for robot, automation and drone technology. Our vision is to make Denmark an even bigger, better robot nation. We do this by accelerating innovation and sustainable development in the industry.

We offer companies opportunities to develop innovative products and technologies, strengthen their foundation for growth, gain industry insights, forge valuable relations and increase their visibility. We do this through projects, networks and events – often in close collaboration with our many knowledge partners.

Odense Robotics has regional hubs in Aalborg, Aarhus, Copenhagen and Sonderborg and its headquarters in Odense.

Become a member today.
odenserobotics.dk/join

ODENSE robotics
Denmark's robot and drone cluster

GOLD Cluster Management Excellence
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